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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,194	08/21/2003	Mark Daniel D'Agostini	06418 USA	7084

23543 7590 06/23/2004

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PATENT DEPARTMENT
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EXAMINER	
RINEHART, KENNETH	
ART UNIT	**PAPER NUMBER**
3749	

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,194	D'AGOSTINI ET AL.	
	Examiner	Art Unit	
	Kenneth B Rinehart	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10,14-16 and 30-32* is/are allowed.

6)☒ Claim(s) *1-5,11-13,17-21 and 27-29* is/are rejected.

7)☒ Claim(s) *6-9 and 22-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/21/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 26 is objected to because of the following informalities: line 25 refers to lest. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 11-13, 17-21, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al in view of Przewalski. Ikeda discloses a method for operating a cyclone combustor having a first burner (21, fig. 7) and a second burner (12A, 12 B, 11D, 11C, fig. 7), each of the first burner and the second burner being in communication with a barrel having a longitudinal axis (fig. 7), a burner end (above item number 6, fig. 4) adjacent at least one of the first burner and the second burner (top end of 20, fig. 7), and a throat end opposite the burner end (22, fig. 7), comprising the steps of: feeding a stream of a primary fuel and a primary oxidant having a first oxygen concentration into the first burner (11A, 12A, fig.7), combusting at least a portion of the primary fuel with at least a portion of the primary oxidant in the barrel of the cyclone combustor, thereby forming a plurality of primary products of combustion in the barrel of the cyclone combustor, thereby generating a first amount of heat in the barrel of the cyclone combustor (fig. 7), the secondary flame has a longitudinal axis substantially parallel to the longitudinal axis of the barrel of the cyclone combustor (fig. 7), the primary fuel is coal (col.

1, line 8), the second burner has a longitudinal axis substantially parallel to the longitudinal axis of the barrel of the cyclone combustor (fig. 7), at least a portion of the second burner is adjacent the first burner (fig. 7), feeding a stream of a primary fuel and a primary oxidant having a first oxygen concentration into the first burner (fig. 7), draining at least a portion of the stable and continuous flow of the molten slag from the barrel of the slagging cyclone combustor (53, fig. 7), the secondary flame generating a supplemental radiant heat in the barrel of the cyclone combustor (flame from burner will inherently radiate (fig. 7) means for feeding a stream of a primary fuel and a primary oxidant having a first oxygen concentration into the first burner (11A, 12A, fig.7), means for combusting at least a portion of the primary fuel with at least a portion of the primary oxidant in the barrel of the cyclone combustor, thereby forming a plurality of primary products of combustion in the barrel of the cyclone combustor (fig. 7), means for draining at least a portion of the stable and continuous flow of the molten slag from the barrel of the slagging cyclone combustor (53, fig. 7). Ikeda et al discloses applicant's invention substantially as claimed with the exception of feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner, and combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, the secondary fuel is a non-solid fuel, feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner, and combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, thereby forming a plurality of secondary products of combustion and a secondary flame, means for feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen

concentration greater than or equal to the first oxygen concentration into the second burner, and means for combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, thereby forming a plurality of secondary products of combustion and a secondary flame. Przewalski teaches feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner, and combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant (col. 2, lines 65-69), the secondary fuel is a non-solid fuel (col. 2, line 68), feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner (col. 2, lines 65-69), and combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, thereby forming a plurality of secondary products of combustion and a secondary flame, (col. 5, lines 54-67), means for feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner (col. 2, lines 65-69), and means for combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, thereby forming a plurality of secondary products of combustion and a secondary flame (col. 2, lines 65-69) for the purpose of providing oxygen and fuel to the ignition burner so that it will operate. It would have been obvious to one of ordinary skill in the art to modify Ikeda by including feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner, and combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, the secondary fuel is a non-solid fuel, feeding a stream of a secondary fuel and a

secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner, and combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, thereby forming a plurality of secondary products of combustion and a secondary flame, means for feeding a stream of a secondary fuel and a secondary oxidant having a second oxygen concentration greater than or equal to the first oxygen concentration into the second burner, and means for combusting at least a portion of the secondary fuel with at least a portion of the secondary oxidant, thereby forming a plurality of secondary products of combustion and a secondary flame as taught by Przewalski for the purpose of providing oxygen and fuel to the ignition burner so that it will operate which will allow a return to be realized on the capital investment of the device.

Allowable Subject Matter

Claims 10, 14-16, 30-32 are allowed.

Claims 6-9, and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 25 is objected to on formal matters, but would be allowable if rewritten to overcome the rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to combustors in general: Becker et al (6089855), Ashworth et al (6152054), Monro et al (5690039), Boswell et al (6368868), Vatsky (5765488), Hallstrom et al (5572956), Northcote

(2973727). Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 703-308-1722. The examiner can normally be reached on 7:30 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBR

KENNETH RINEHART
PRIMARY EXAMINER